
XXIV. *Observations on the Chrysanthemum Indicum of Linnæus.*
By Joseph Sabine, Esq. F.R.S. and L.S. &c.

Read December 18, 1821.

HAVING been lately engaged in an examination* of the plants cultivated in the English gardens under the name of Chinese Chrysanthemums, and which have generally been considered by English botanists as varieties of the *Chrysanthemum Indicum* of Linnæus, I have been led to adopt the opinion, that the plants which he intended to designate by that name, are different from those to which the appellation has of late been applied in this country. And as these plants were sufficiently described by different writers, at the time when Linnæus formed the character of his species, and referred it to the plants of various authors which he quoted, I consider that his omission of reference to the others must be taken as evidence that he did not deem it expedient to unite the whole.

When the first of the Chinese Chrysanthemums now in our gardens was introduced into France in 1789, M. Ramatuelle†, who published an account of it, called it *Anthemis grandiflora*. Willdenow‡ subsequently, in 1801, placed it under the same genus; but he gave it another specific name, calling it *Anthemis*

* See *Horticultural Transactions*, vol. iv. p. 326. "Account and Description of the Varieties of Chinese Chrysanthemums, &c."

† *Journal d'Histoire Naturelle*, vol. ii. p. 233.

‡ Willdenow in *Nov. Act. Soc. Nat. Scient. Berol.* vol. iii. p. 431.

*Artemisiæfolia** ; and as a proof that he considered it to be quite different from the *Chrysanthemum Indicum* of Linnæus, he retained that plant as distinct, leaving it in its proper station in his *Species Plantarum*†. Another author ‡ has called the Chinese Chrysanthemum *Anthemis stipulacea*. The reason for the removal of it from *Chrysanthemum* to *Anthemis* was, that paleæ were found to exist on the receptacle at the base of the florets, and that circumstance constitutes part of the character of *Anthemis* and not of *Chrysanthemum*, the receptacle of which is naked.

The plant now known as the Purple Chinese Chrysanthemum, which had been described in France by M. Ramatuelle, was sent to England by M. Cels in 1790 ; a description and figure of it were published in the *Botanical Magazine* (pl. 327.) in 1796, where it was called *Chrysanthemum Indicum* ; but no notice was taken of M. Ramatuelle's observation or change of name. In the second edition of the *Hortus Kewensis*§ it is also given as *Chrysanthemum Indicum*. At the time (1813) of the publication of that work several varieties, which are enumerated, had then been introduced ; M. Ramatuelle's memoir is referred to in it, and Willdenow's *Chrysanthemum Indicum* as well as his *Anthemis Artemisiæfolia* are quoted as belonging to the species. The same opinion of the application of the references was held by the Editor of the *Botanical Register*|| in 1815, who gave figures of two of the varieties, accompanied with some observations on the species. The authors of those works appear to have considered that the existence of the paleæ on the receptacle in the cultivated plants was only the effect of luxuriance, and not likely to

* Willdenow *Sp. Pl.* vol. iii. p. 2184. Willd. *Enum.* vol. ii. p. 911.

† Willdenow *Sp. Pl.* vol. iii. p. 2147.

‡ Moench *Supplementum ad Methodum Plantarum*, p. 258.

§ vol. v. p. 95.

|| vol. i. plate and p. 4.

be found in the wild state of the species, and that therefore the placing them under *Chrysanthemum* was still correct.

In the *Botanical Register* (p. 527.), under the article *Anthemis apiifolia*, will be found the reasons why it is still considered proper to refer the plants in question to *Chrysanthemum*; but this is not a point which I am desirous of entering into, my only object being to ascertain what plants were considered by Linnæus as belonging to his *Chrysanthemum Indicum*, and whether it is not probable that he contemplated the separation of the Chinese *Chrysanthemums* from it.

The first notice of *Chrysanthemum Indicum*, as a species, under that name, is in the first edition of the *Species Plantarum**, published in 1753. In that work Linnæus makes two varieties of the plant; his first, the *Var. α*, is described from his own Herbarium, and is also referred to a description and figure of Plukenet; the *Var. β* is referred to another plant, which is also described and figured by Plukenet, as well as to Linnæus's own account in his *Flora Zeylanica*† of a specimen in the Herbarium collected by Hermann, between the years 1670 and 1677, in the Island of Ceylon. It seems, from the observations in the *Flora Zeylanica*, that in considering the plant as belonging to *Chrysanthemum*, the attention of Linnæus had not been directed to the paleæ on the receptacle, but to the formation of the calyx, which appeared to accord with that of *Chrysanthemum*; so that, in fact, this point of difference between the two genera of *Chrysanthemum* and *Anthemis*, which is so much relied on by later botanists, had not been under Linnæus's consideration when he fixed the place of the plant he had described.

Before I proceed further to observe on the works referred to by Linnæus, it will be expedient to examine the original writers

* vol. ii. p. 889.

† *Flora Zeylanica*, p. 198. no. 421.

on the plants of China and Japan, from which countries all the plants are derived. Kæmpfer, Thunberg, and Loureiro have noticed them, and their observations will materially assist in the investigation of the subject.

Kæmpfer's Account of the Plants of Japan was published in 1712 (neither Linnæus nor Willdenow refer to his work in either of their editions of the *Species Plantarum*); he describes* the plants we call the Chinese Chrysanthemums, under the name of *Matricaria*, as growing both wild and in gardens in Japan, being called by the natives *Kik*, *Kikf*, or *Kikku*; he mentions that there are many varieties, some of which are in blossom at all times of the year, and that they are a principal ornament of the gardens in the towns. He distinctly describes eight with double flowers; the first has flowers variegated with red and yellow, about one inch in diameter, having a small yellow disc; the second has flowers variegated with red and yellow, three inches in diameter, and without any apparent disc; the third has a very double golden-coloured blossom without a disc, as large as a double hundred-leaved Rose, and having broad fragrant leaves; the fourth has white flowers, of various sizes, without any disc; the fifth has its flowers slightly flesh-coloured, two inches in diameter, and without a disc; the sixth has reddish-purple flowers, with a moderately-sized disc; the seventh is a plant with numerous branches, flowering abundantly, its flowers being scarlet suffused with dingy red, having a yellow disc of an inch in diameter; in the eighth the flower is an inch and a half in diameter, the radial florets being white, with purple at their ends, yellow tubular florets being mixed with them. In addition to these, he mentions other plants with flowers of very different characters from the preceding, which he appears to have considered as in

* Kæmpfer *Amœnitates Exoticae*, pp. 875—877.

some way connected with them, and therefore I notice them, though I do not suppose that they belong to those on which I am now treating.

Thunberg in his *Flora Japonica*, published in 1784, describes* the plant which he considers as Linnæus's *Chrysanthemum Indicum*, and refers it to the preceding account of Kæmpfer. He states, that it is called by the Japanese† *Kikokf*, *Kiko no Fanna*, *Kik*, *Kikf*, or *Kikku*; that it has many varieties, different in the colour as well as size of the flowers; and also that there are single- and double-flowering plants of it; that it is much cultivated in the houses and gardens of Japan, on account of the beauty of its flowers; that it grows spontaneously at Papenberg near Nagasaki, and other places in Japan; and that it flowers in the summer and autumn months.

Loureiro published his Description of the Plants of Cochin-China in 1790, and amongst them enumerated‡ the *Chrysanthemum Indicum* of Linnæus, to whose *Species Plantarum* he refers, adopting his character of the plant. Loureiro's description of the stem and leaves belongs exactly to the Chinese Chrysanthemums, and it was certainly those plants which he meant to describe. He represents them as having double flowers; that is, with the florets all ligulate, and adds, that their receptacles were naked; but to this last assertion I attach little importance, it being probable that, as he knew that the genus (according to Linnæus) ought to have that character, he assigned it without examination; we know the fact to be, that their receptacles are

* Thunberg *Flora Japonica*, p. 320. *Chrysanthemum Indicum*.

† Some of these names are slightly different from those given by Kæmpfer, but the difference is only in the terminations, of which there are several united to *Kik*. The addition in the second name is only expressive of elegance; the term *Fanna* being usually added by the Japanese, when they desire to mark a plant as possessing such character.

‡ *Flora Cochinchinensis*, p. 499. edit. 2.; a *Willdenow*, vol. ii. p. 610.

chaffy. His description of the varieties is very perfect; they differ, he says, a little in the form and size of their leaves and in the size of their stems, but most in the colour of their flowers, which are white, flesh-coloured, purple, violet-yellow, and red, and three inches and more in diameter. These varieties, he states, are cultivated in the gardens of CochinChina and China, on account of the beauty of their flowers, but he adds that the odour of the whole plant is disagreeable.

The preceding accounts are all referable without difficulty to the plants called Chinese Chrysanthemums, for there is nothing recorded by these authors which does not well agree with those varieties we already know, save that it is stated by Thunberg that some of them blossom in the summer, and by Kæmpfer that they are in flower in all seasons*. But they do not well apply to any of the descriptions and accounts quoted or given by Linnæus under *Chrysanthemum Indicum*.

I have already referred to the account in the first edition (published in 1753) of the *Species Plantarum*; but as Linnæus in his second edition† of that work (published in 1762-3) added some references (viz. those to Rheede and Rumphius), which were not in the former, it will be advisable to take the latter publication as the basis of the inquiry. The whole article in it is as follows:

Chrysanthemum (Indicum) foliis simplicibus ovatis sinuatis angulatis serratis acutis.

* The natural time for the flowering of the Chinese Chrysanthemums is during the late autumn months; but some of the varieties blossom with us in October, and others are scarcely fully open till December; it may therefore be reasonably imagined that the skill of the Chinese, applied to accelerating the period of blossoming in the former case, and retarding it in the latter, may have effected in a great measure the extended period of flowering mentioned by Thunberg and Kæmpfer.

† *Species Plantarum*, edit. 2. vol. ii. p. 1253.

Matricaria Sinensis, minore flore, petalis et umbone ochroleucis. *Pluk. Amalth.* p. 142. tab. 430. fig. 3. (erroneously printed fig. 2.)

Matricaria Sinensis. *Rumph. Amb.* vol. v. p. 259. tab. 91. fig. 1.

Tsjetti-pu. *Rheede Mal.* vol. x. p. 87. tab. 44.

β. *Chrysanthemum Madraspatanum*, oxyacanthæ foliis cæsiis ad marginem spinosis, calyce argenteo. *Pluk. Alm.* p. 101. (*Phytographia*) tab. 160. fig. 6.

Matricaria Indica, latiore folio, flore pleno. *Moris. Hist.* vol. iii. p. 33.

Matricaria Sinensis, flore monstroso. *Vaill. Act.* 1720. p. 285. (printed 368 in the *Species Plantarum*). *Flora Zeylanum.* 421.

Matricaria Zeylanica hortensis, flore pleno. *Raii Suppl.* p. 224.

I shall examine each of the above quotations and synonyms in the order in which they occur.

Plukenet's *Amaltheum* (his works were published some a little before, and others soon after the beginning of the eighteenth century,) gives no further description of his plant than appears in the quotation: but from the figure it may be observed, that the leaves are like those of our Chinese *Chrysanthemums*, though but slightly indented: that the flowers are produced from the sides as well as the ends of the branches; that they are very small, the rays and disc (as mentioned in the description) being yellow. Although the disc is noticed in the description, in the figure the flowers are represented as fully double, and consequently without any apparent disc.

Rumphius's *Herbarium Amboinense* was published in the year 1750 by John Burmann. It is a description and account of plants collected in Amboyna and the adjacent islands. The ac-

count of the *Matricaria Sinensis** is, that it was introduced from China, where it is known by the name of *Kiok-hoæ*, but that it is called by the Malays *Serune*; that its natural time of flowering in China is May and June, which being the rainy season in Amboyna, prevents the flowers from opening well, and that from October to April the plant is without flowers. It is stated further, that the Chinese cultivate it in pots, keeping it dwarf, and allowing only one flower to blow, but that in their gardens it does not succeed well, degenerating and perishing in two years. The figure represents the leaves like those of our Chinese Chrysanthemums, and the flowers double and very small. The plant is described as having a small root creeping under the ground, and throwing up suckers, though it is propagated by cuttings, in order to obtain larger flowers. Five varieties are mentioned, but the three last are said to be only known in China: the two first were cultivated in India; one of these has a white, the other a yellow flower. The white grows from two feet to two feet and a half high, with brittle branches, its leaves being deeply cut, dark green, and underneath downy; but the upper leaves are different in shape; the flowers globular, of the shape and size of a *Caltha* (a *Calendula*), with numerous white petals filling up the whole flower, except the centre, which shows a small yellow disc, and smells like Chamomile. The yellow variety is mentioned as having larger leaves, more elegantly cut, being more dwarf, and with flowers larger than the former. Of the three other varieties, the first was a flower similar to the two

* There are several points in the description and history of these plants of the *Herbarium Amboinense* that cannot possibly be applicable either to the small-flowering plants supposed to have been the real *Chrysanthemum Indicum* of Linnæus, or to those we call the Chinese Chrysanthemums. I am disposed to suspect that some confusion exists in the account, and that the characters of several plants have been mixed together.

preceding, of a red colour, but which did not blossom well; the next had a greenish ash-coloured flower; and the blossom of the third was white; this last is said to be rare in China, where it is called *Tschy Saisi*, or the Drunken Woman, because the flowers at morning and evening hang their heads, raising them in the middle of the day, and following the course of the sun.

Rheede's *Hortus Malabaricus* is a work of much older date than the preceding, having been published in 1690. Rumphius considers his *Matricaria Sinensis* to be the same as Rheede's *Tsjetti-pu*, which is its native name in Malabar: the Portuguese call it *Alosna de Botao*; it is described as growing in sandy places, and having an aromatic odour; its branches being round, woody, and green; its leaves deeply cut into oblong narrow laciniaë, underneath very hairy, and greenish-white; having from two to four flowers rising above the branches, with green ligulate florets and a small yellow disc. According to the figure the plant has a branching stem with a central flower, leaves like the Chinese *Chrysanthemum*, but not deeply lobed, and the flowers small like a Chamomile; they are represented as quite double.

The whole description of the plant of Plukenet's *Almagestum*, which he calls *Chrysanthemum Madraspatanum*, is given in the quotation: the plant, according to the figure referred to, has leaves which are but slightly lobed, and small double flowers; it was communicated to Plukenet by Mr. Du Bois, a merchant who greatly assisted the botanists of his time by means of his connections with foreign countries, and particularly with the East Indies.

Morison's *General History of Plants*, the third volume of which was published by Bobart in 1699, gives the plant described in Linnæus's quotation solely on the authority of the *Hortus Malabaricus*, referring to the *Tsjetti-pu* of that work.

Vaillant's paper in the *History of the Royal Academy of Sciences*

ences at Paris, which is quoted, is an enumeration of Corymbiferous flowers; he mentions two varieties of the plant referred to; the first is that of Plukenet's *Amaltheum* above mentioned; the second (which is the plant especially quoted) is a double-flowering one, noticed in the Catalogue* of Petiver's Museum, published in London in 1695, as a specimen existing in it, and there called *Matricaria Madraspatana, flore pleno flavescente*.

The *Flora Zeylanica*, which was published by Linnæus in 1747 (the reference to which follows that to Vaillant's paper), makes two varieties, after the example of that writer. The α , or the first, is the second variety of the *Species Plantarum*, and being a double flower, is also referred to the plants of Vaillant, of Morison, of Ray's History (noticed below), of Petiver's Museum, of Plukenet's *Almagestum*, and to the *Tsjetti-pu* of the *Hortus Malabaricus*. The *Var. β* is Vaillant's first variety, and is referred to that as well as to the plant of Plukenet's *Amaltheum*. Linnæus, in the description of these varieties, seems to have misplaced them by putting the double-flowering one as the type; he changed this arrangement in the *Species Plantarum*, the α of the *Flora Zeylanica* being the β of the *Species Plantarum*, and the variety β being the α . In addition to the quotations in the work which are mentioned above, and which I have placed together, because they are all referred to in the *Species Plantarum*, there is for the variety α , a reference to the *Matricaria flore pleno magno* of Hermann's *Museum Zeylanicum*†, and of Burmann's *Thesaurus Zeylanicus*‡; the former work being Hermann's Catalogue of his own Herbarium, collected by himself in Ceylon; the latter is a more general catalogue of Singhalese plants, founded on another Herbarium of Hermann's as well as on other collections. Besides the references, Linnæus gives the following short description of his plant:

* Museum Petiver. p. 76. no. 786.

† page 33.

‡ page 153.

Caulis herbaceus, erectus. *Folia* simplicia, cordata, sinuato-multifida, incisa, petiolata (*Artemisiæ facie*). *Flores* ramos terminantes, calyce imbricato squamis margine membranaceis, ut in *Chrysanthemis*. *Corolla* plena.

The plant of Ray's Supplement to, or third volume of, his *History of Plants*, published in 1724, is described from a specimen communicated to him by the celebrated botanist Dr. William Sherard; it had double flowers, the upper leaves being narrow, oblong, and entire; the lower leaves trifid. Ray gives no reference to other authors.

These are all the descriptions and references quoted by Linnæus. It may, I conceive, be considered that, of his two varieties, the α was supposed to have a single flower, and the β a double flower; and I doubt much if he contemplated any other important difference between them. Of the authors quoted, Morison, Vaillant and Ray have little weight in the point to be settled, for they can scarcely be considered as original describers; and to the plants of Rumphius and Rheede, which are not noticed in the first edition of the *Species Plantarum*, I am not disposed to attach much importance in the consideration of the question, their accounts in many points being quite discordant with the plants to which they are referred. By the figures and characters of Plukenet, and by Linnæus's own description of the plant in the *Flora Zeylanica*, in concurrence with the specific character given in the *Species Plantarum*, the question must be principally settled. With these views, I conceive that, giving proper weight to each of the preceding details, though there are some differences which prevent perfect accordance, it may be fairly deduced that the plant which Linnæus intended to describe as *Chrysanthemum Indicum*, had leaves much resembling those of the Chinese Chrysanthemums, but that its flowers were small,
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with short radial florets, which in most of the cases cited were yellow; and that the flowers, whether single or double, considerably resembled in their general appearance those of the common Chamomile or the Feverfew, and consequently were very unlike those of the Chinese Chrysanthemums.

The Linnæan Herbarium being in the possession of our President Sir James Edward Smith, he has kindly and liberally intrusted me with the examination of the original specimens, from which, as appears by notes attached to them, the character of the *Species Plantarum* was formed; I am thus fortunately enabled to elucidate more distinctly the differences which I have pointed out between the two plants. The specimens are two branches, both with single flowers, probably distinct varieties, the one having shorter footstalks and more finely-pointed serratures to the leaves than the other. The leaves, though having a great similarity to the Chinese Chrysanthemums, stand closer together, and are also smaller than in any of the varieties we know. The flowers are very small, the radial florets of that with long footstalks extending about a quarter of an inch only beyond the calyx; in the other specimen they do not exceed the length of the calyx; part of the flosculi of the disc of the first of these has been removed, and shows clearly that the receptacle is naked, or free from paleæ; this is a very important circumstance to have ascertained. Besides these two specimens, there is a third on the same paper; it is a small piece of a branch, or scarcely more than a footstalk, with a double flower, the expansion of which is near an inch and a half; by being placed on the same paper, it was of course considered by Linnæus as his variety β ; but it is too imperfect to lead to any decided conclusion: it does not resemble any of the figures quoted by Linnæus, nor does it agree with the descriptions he has referred to, and might certainly be taken for a small flower of a Chinese Chrysanthemum.

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In addition to this evidence from the Linnæan Herbarium, there are two Herbaria in the invaluable collections procured by the late Sir Joseph Banks (whose unremitting zeal in the service of science, and endeavours to promote all that was good and useful for the benefit of mankind, will be remembered with gratitude by those who had the happiness to possess his friendship, and by all who have the real interest of science at heart), which, by the assistance they afford in this inquiry, are a proof of the peculiar utility of the preservation of well attested specimens. The first is an Herbarium formerly the property of Hermann; in it the identical specimens on which his *Thesaurus Zeylanicus* was formed are contained, being also the specimens which passed under the eye of Linnæus when he compiled the *Flora Zeylanica*. The specimen of the *Chrysanthemum Indicum* has small double flowers, and thus the precedence of the double variety in the *Flora Zeylanica* is in some measure accounted for; it is in three distinct pieces, two being flowering branches, and the third part having leaves only, probably all gathered from the same plant, which appears to have grown with vigour; and, except in the impletion of the flowers and greater size of the branches and leaves, accords in character with the Linnæan specimens. The other Herbarium is a volume of plants which belonged to Plukenet, and which contains three specimens deserving notice, as they all tend to elucidate this inquiry. The first is at the upper part of page 117 of the volume; it has been ticketed by Dr. Solander as *Chrysanthemum Indicum*, and by a note in old writing attached to it, is made the *Matricaria Sinensis* of the *Amaltheum*, which is quoted by Linnæus for his *Chrysanthemum Indicum*; it is as near as possible the same (only that it is double) as Linnæus's specimen, which I distinguished as having short footstalks. Another specimen, at the bottom of the same page, has been ticketed as *Chrysanthemum dubium* by Dr. Solan-

der, not being accompanied by any other note: it does not seem to agree with any plant described by Plukenet; it is only a small specimen with but one flower, very much like the imperfect specimen I have mentioned of the Linnæan Herbarium. The third specimen is of considerable importance; it occupies the whole of page 116 of the book; by a note in the same old writing above cited, it is referred to the *Matricaria Japonica maxima, flore multiplici flavescente, Shamunty Malabarorum* of the *Amalthæum*, page 142, which is not quoted by Linnæus, though it immediately precedes the *Matricaria Sinensis*, which he makes a synonym of his *Chrysanthemum Indicum*; he therefore, I imagine, did not think it belonged to this plant. The specimen is more like a Chinese Chrysanthemum* than any thing hitherto noticed; and if the note referring it to the *Matricaria Japonica maxima* be correct, we have a synonym probably referable to our Chinese Chrysanthemum, not adopted by Linnæus for his *Chrysanthemum Indicum*, though it had come under his observation. No specimen of the *Chrysanthemum Madraspatanum* of the *Almagestum* is to be found in this book.

If the omission of a reference to Plukenet's *Matricaria Japonica maxima, flore multiplici flavescente*, as above stated, can be considered any evidence that Linnæus did not consider it referable to his *Chrysanthemum Indicum*, the passing over another plant of the same author will be decisive of the question of difference in the mind of Linnæus; for there can be no doubt that this latter is actually a Chinese Chrysanthemum. The plant I allude to is thus described at page 243 of the *Almagestum*:

* It will be very desirable that this plant should, if possible, be obtained from China; it has flowers of a moderate size, not quilled, and fully double, similar to the Rose or Buff Chinese Chrysanthemum, with particularly short footstalks, by which the flowers appear imbedded in the leaves; and they grow from the alæ of the leaves, lower down on the branches than in those varieties now in our gardens.

“*Matricaria Japonica maxima*, flore soseo, seu suave-rubente pleno elegantissimo. Breyn. Prod. ii. 66. *Kychonophane Japonensibus dicta*, &c.” The work of Breynius, from whence this plant is quoted by Plukenet, was published in 1689, and is entitled *Prodromus Plantarum rariorum secundus, exhibens Catalogus Plantarum rariorum anno 1688 in Hortis celeberrimis Hollandiæ observatarum*. At page 66 of this book are mentioned two plants, viz. *Matricaria Japonica flore minore albo simplici*; and, *Eadem flore pleno*, both sent to Breynius by Von Rhyne, the Governor of the Cape of Good Hope. These were probably plants of Linnæus’s *Chrysanthemum Indicum* with single and double flowers; they are both quoted by Ray*, distinct from his *Matricaria Zeylanica* (which is the one Linnæus refers to), and he seems to consider the double one to be the same plant as that of Petiver’s Museum before noticed. Sherard appears to have been of opinion that it was actually the same as the *Matricaria Zeylanica*, and there is little doubt but that he was right: if so, both these ought to have been quoted by Linnæus for the α and β of his *Chrysanthemum Indicum*. These are followed by an account and description, which I shall give in the words of Breynius himself†:

“*Matricaria Japonica maxima, flore roseo, sive suave-rubente pleno elegantissimo, nobis. Kychonophane Japonensibus. Corymbosarum radiatarum omnium formosissima planta, atque Japoniæ insigne decus, minus foetet, quam Matricaria vulgaris, inque humanam ferme altitudinem fruticis ad instar procrecit, multis ramis: foliis majoribus, nec non multo longeque latioribus: floribus in ramulorum et caulis summo,*

* Ray, *Suppl.* page 224.

† This plant is also introduced by Ray into his Supplement, and is in the page of that work above referred to; and in the same page is the *Matricaria Zeylanica* which Linnæus quoted: so that there can be no doubt that this plant of Breynius must have been under his notice.

plerumque solitariis. *Rosæ* amplitudine, petalorum sesquiunciam longiorum, culmum latorum, in extremo frontatorum, suave-rubentium multiplici foetu luxuriantibus, qui tamen in medio, luteum discum parvum, haud sine jucundissimo aspectu, et singularem huic plantæ gratiam conciliantem, commonstrant. *Semina* solida, vulgaris majora. Variat, floribus suave-rubentibus, candidissimis, purpureis, luteo-obsoletis, carneis atque phœniceis."

This is without doubt a description, by an author of great reputation, of six varieties of our Chinese Chrysanthemums existing in the Dutch gardens upwards of one hundred and thirty years ago, and yet not referred by Linnæus to his *Chrysanthemum Indicum*. In the above account it is stated that they bore seeds, which circumstance has not been even observed since their more recent introduction into Europe. It is singular that those plants of Breynius have not been referred to by any old author, except Ray and Plukenet; and amongst the modern writers, the only one who paid the least attention to them is Curtis, who, in the *Botanical Magazine*, no. 327, in describing the Purple Chrysanthemum, quotes the *Matricaria Japonica maxima* of Breynius, but he even does it with a mark of doubt.

When I first entered into the preceding inquiry, I little expected that it would have occupied so large a space; but the intricacy in which I found it involved has obliged me, in order to elucidate it completely, to extend my investigation of the subject to some length: I trust, however, that my purpose will have been answered. I think it clear that the two varieties of Linnæus's *Chrysanthemum Indicum*, and all the plants of the authors cited by him, whether the same as his plants or not, have very small flowers, and therefore to be distinguished from those plants with large flowers, now called Chinese Chrysanthemums, and
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which appear to have been known in Holland many years before they became objects of attention to modern gardeners. I cannot conceive how plants so easy to cultivate could have been lost; but no trace of them existed in the Dutch gardens when they appeared again in Europe. The modern writers, who have considered the whole as belonging to one species, have erred in treating them as actually the same, Persoon* alone excepted; he has avoided this error by keeping the Purple Chinese Chrysanthemum (the only one he knew) distinct from the plant of Linnæus, though under the same name, seeming to be of opinion that the great difference between them was effected by skilful cultivation.

Having distinguished the plants, I shall leave the determination of the true generic character and specific identity to the future investigation of some one more practised in botanical disquisition than myself, trusting that the result of the present inquiry will be the speedy introduction from India, in a living state, of those plants which have been described by the older writers, but which are not at present in the gardens of Europe. That they exist in China is ascertained by the Herbarium of Sir Joseph Banks, now in the possession of my friend Mr. Robert Brown, in which are many different specimens, all arranged as varieties of *Chrysanthemum Indicum*, which were brought from China by the late Sir George Staunton, when he accompanied Lord Macartney's Embassy to Peking; some of these are of different kinds of Chinese Chrysanthemums; others are of the plants with small flowers (some single, some double), which I consider to be the *Chrysanthemum Indicum* of Linnæus; one of these with double flowers exactly resembles the specimen in Plukenet's Herbarium referred to his *Matricaria Sinensis*. Mr. Lambert has a specimen from China, corresponding with this latter, also having

* *Synopsis Plantarum*, vol. ii. page 461.

double flowers, which, having been examined, is ascertained to be without palææ in the receptacle; and this circumstance strongly militates against the opinion that the palææ on the receptacle of the Chinese Chrysanthemums are the effect of the impletion.

Among the specimens in the Banksian Herbarium, Mr. Brown has pointed out to me one with small single flowers (and with a naked receptacle), which may, I conceive, be considered as the *Chrysanthemum Indicum* of Linnæus: it is from China, but not one of those brought by Sir George Staunton. This specimen is in a very perfect state: a sketch of it has been engraved and published in the *Transactions of the Horticultural Society* (vol. iv. plate 12.) together with a copy of a coloured drawing (vol. iv. plate 13.) belonging to the East India Company, which I conceive represents the *Chrysanthemum Indicum* of Linnæus in a double state.